Summerfield Elementary School

Neptune, New Jersey

EI Associates, Architects & Engineers, PA

"Green" School Building
New Construction

EI Associates, Architects & Engineers, PA
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OWNER/CLIENT
Neptune Township
Public Schools
Neptune, NJ
David Mooij,
Superintendent of Schools
(732) 776-2000

Type of School and
Grades Served:
Elementary School, Pre-K-5

Capacity: 656 students

Size of Site: 6.7 acres

Area of Building:
101,912 square feet

Volume of Building:
1.2 million cubic feet

Space per Student:
155 square feet

Cost per Student: $28,216

Square Foot Cost: $181

Construction Cost: $18.5 million

Total Project Cost: $22.1 million

Contract Date: July 2004

Completion Date: May 2006

Percent of Completion: 100%

STREET VIEW

Under a pilot program this design/build school project—the first in the state—was completed in 22 months. The building and site portray a theme of local early American colonial architecture and agriculture, including colonial era sustenance gardens and vernacular styling. The building organization includes grade clusters, circulation to minimize classroom disruption, and core facilities organized for off-hour community use.

The school, which borders Green Acres land, takes every opportunity to make connections with the environment including a solarium corridor to support horticulture-related and other curriculum activities; an art patio for instruction and display; a music room that opens to an amphitheater and serves as a stage to the cafeteria; a cafeteria that features a fireplace and opens to an environmental patio; a nature trail; a media center that overlooks


PRE-K PLAYGROUND


COURTYARD

MEDIA CENTER

CAFETERIA EXTERIOR

TYPICAL CLASSROOM

a bio-retention swale; and a discovery learning center that describes the building and site architectural and sustainable features. The interior color scheme was developed to bring the outdoors in, using earth tones at grade, canopy green colors at the second level, and echoing the blue sky on the top floor.

The site design incorporates features such as ground water recharge facilities, water quality treatment, bio-retention swales, and roof-water collection for garden irrigation. The ground level of the school steps with the natural contours of the site. Each step is connected by gradual ramps in the corridors. The stepping of the ground floor allows barrier-free access to and from the school in several locations and around the perimeter of the building.

The mechanical design combined the proven technologies of dedicated outdoor air systems, demand control ventilation, a geothermal field with heat pumps, individual room controls, carbon dioxide monitoring, and under-floor displacement air distribution for quiet operation and occupant comfort, resulting in an HVAC system that was first-cost competitive with superior performance and life-cycle costs.

The electrical design incorporated semi-indirect lighting with T8 fluorescent lamps, multilevel light switching with room occupancy sensors, and LED exit signs. Low flow plumbing fixtures, proximity sensors, and waterless urinals were incorporated into the plumbing system.

The high performing mechanical and electrical designs, together with the high thermal rating of the building envelope and sunscreens, reduced the energy consumption by 33.5 percent and water usage by 34.6 percent over a comparable traditionally designed facility. This project has been submitted for and is expected to receive a LEED gold rating from the USGBC. ■